The neglected tropical diseases (NTDs) consist of a group of parasitic and bacterial infections that affect >20% of the world’s current population. Up to 90% of those affected live in remote, rural areas or in urban slums in Africa, Asia, and Latin America, areas that are characterized by a vicious circle of sustained poverty and endemic diseases that makes people unable to care for themselves. The overall aim of the Millennium Development Goals approach [1] is to lift 1 billion of the least privileged people out of such situations, promising substantial benefits for vulnerable populations around the world. Control of the NTDs is a critical component of this endeavour and should be dealt with at an early stage, because it would have immediate knock-on effects on other health-related conditions, such as malaria morbidity and human immunodeficiency virus transmission.

Soon after the creation of the People’s Republic of China, Chairman Mao Zedong initiated his celebrated campaign against the most common NTDs by famously attacking the snail, which is the intermediate host of schistosomiasis, in his poem “Farewell to the God of Plague” [2]. In recognizing the stifling effect of endemic diseases, both at the national and at the individual level, Mao Zedong was a true visionary who ushered in an approach that has since borne abundant fruit [3, 4]. Progress in the control of schistosomiasis has been remarkable, not only in the People’s Republic of China, but also in many other countries [3, 5–7], which offers hope that this scourge that still affects >200 million people worldwide [6] can soon be dispatched to the annals of history. However, lasting success against schistosomiasis hangs on the thin thread of continued efficacy of a single drug, praziquantel, which was introduced 30 years ago [8]. Although we have yet to see convincing evidence of drug resistance, praziquantel might still follow the path of ivermectin, whose use for the treatment of onchocerciasis is now threatened [9]. If that does come to pass on a large scale, the struggle against these 2 parasites would throw us right back to the 1980s, with precious little time to develop substitute drugs.

The situation with respect to chemotherapy against malaria is well known [10], and the development of drug resistance against helminth infections controlled by mass chemotherapy is a constant threat in veterinary practice [11]. The article by Keiser et al [12] in this issue of Clinical Infectious Diseases is noteworthy in this connection, because it hints at possible new applications of existing drugs. Alternative antischistosomal drugs are of great potential interest, because a premature loss of praziquantel would not only jeopardize the current success that has been achieved with regard to schistosomiasis, but would also lead to the closure of the window of opportunity for assembling an integrated approach (ie, the combination of an effective drug with another approach, such as a vaccine), without which the final elimination of this parasite will be hard to achieve.

Modern malaria drug treatment started in the People’s Republic of China and developed into artemisinin-based combination therapy, which is currently recommended because of its higher efficacy, compared with single-drug treatment, and because of the lower risk for the development of resistance. The effect of artemisinins against schistosomes has been known since the 1980s [13], but the first proof-of-concept trial involving coinfected individuals appeared only in 2007 [14]. Dr Keiser and her colleagues confirm and further strengthen this important evidence base. However, the real novelty of their article is that they have put earlier reports of the effect on schistosomes by another antimalarial (ie, mefloquine) [15, 16] on a much stronger footing. The proof-of-concept presented here is welcome, but additional laboratory studies aimed at achieving a full understanding of the antischistosomal properties of the quinolines and artemisinins are needed to justify large-scale, controlled field trials.

Just as praziquantel remains the drug of choice for schistosomiasis, so are mef-
loquine and artesunate first and foremost malaria drugs. However, the report of the effect of mefloquine-artesunate against Schistosoma haematobium in the field certainly warrants further investigation. This article highlights the need for mode-of-action research and complements recent information on in vitro killing of Schistosoma japonicum by mefloquine through what appears to be a different mechanism than that used by praziquantel [17]. Based on the need for new antiparasitic drugs, and the need for new anti-schistosomal therapies in particular, 2 axes of research should be pursued: (1) investigation of different and more efficient combinations of existing drugs with a focus on the interesting fact that antimalarials can also kill trematodes and (2) profiling of existing drugs with the aim of finding leads to superior derivatives and formulations. The work presented by Keiser et al [12] could result in huge potential benefits, because it leads in the direction of the new drugs that this field so desperately needs.

Acknowledgments

Potential conflicts of interest. R.B.: no conflict of interest.

References